

11th March 1955.

Professor John R. Raper,  
The Biological Laboratories,  
Harvard University,  
16 Divinity Avenue,  
Cambridge 38, Mass.,  
U.S.A.

Dear Professor Raper,

I shall be very happy if I can be of any assistance to you and your Committee concerning Jim Watson. I should first tell you that Watson is a close personal friend of mine, We shared a room at the laboratory here, and we had lunch together almost every day for a year and a half or so. We have written four papers together, and are at present engaged on a fifth. Last August I spent three weeks with him at Woods Hole and Cold Spring Harbour, and we hope to see him over here in July, to take some X-ray pictures on our rotating anode tube. I feel that I can give you a close view of Watson, both as a scientist and as a person, though not perhaps an entirely detached one.

To take your questions in turn: as you say, Watson's achievements are impressive. I would, however, like to make two points about them. The first is that Watson has shown great powers of scientific discrimination in choosing his fields of work. Thus, in spite of Max Delbrück's (past) opinion to the contrary - and Watson is in many ways a disciple of Delbrück - he saw the importance of molecular structure for biological problems, and took steps to apply himself in that direction.

This ability to choose significant problems springs from the astonishing maturity and breadth of his scientific judgement, which is not perhaps always obvious because of a certain immaturity of manner.

My second point is that Watson has shown a quite unusual ability to master disciplines of which he has had no previous experience. During his stay here, for example, he assimilated easily and quickly the Bessel function formulation

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of the X-ray diffraction from helical structures (which was at that time very new) and applied it successfully in an unexpected context - the structure of Tobacco Mosaic Virus.

As to Watson's future interests I can, I think speak with some confidence, as they coincide with my own. They lie in the following wide class of problems: the molecular basis of gene replication, of gene action, and in particular its relation to protein synthesis. This whole field, as you know, is in a state of rapid, confused, development. Watson's ability to survey this field as a whole, to learn new techniques and to apply himself to crucial problems, make us all believe that he will continue to produce important work.

I should make one reservation to the above opinion. Watson is somewhat sensitive to the general atmosphere in which he finds himself. His friends feel that at this stage in his career he would do well to seek some assured position in a stimulating scientific atmosphere. As, however, a place on your staff would be admirable for him, you obviously need have no fears on this account.

As to the quality of Watson's teaching, I can be of rather less help to you. It is, I think, a general finding that scientists of Watson's type of personality do not always lecture well initially, but that they improve strikingly with a little regular practise. I have another close friend - a pure mathematician - of whom this has certainly been true. I feel confident that a position on your staff will develop in Watson an ease of manner (and an increase of audibility!) which at the moment he occasionally lacks. He has in him the makings of a first-class lecturer, and I have heard him give lectures which for clarity and incisiveness would be hard to equal.

As to the probable future prospects and importance of Watson's field of interest, it is perhaps hardly fair to ask me, as I am naturally a rabid enthusiast for it! I feel certain that there will be further interesting and exciting developments during the next ten years, which will be of the first importance for biology. Watson, being trained as a biologist, is very well suited to integrate this knowledge into the context of biology in general.

Regarding Watson's personality, he suffers, I think from a certain degree of emotional immaturity, and he is occasionally moody. Fortunately, this is offset by his other personal assets, and it has not interfered with his productivity. People get on well with him, and he has a

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very wide circle of scientific friends both in the States and in Europe. His awkwardness of manner will, I believe, disappear as he gets older.

In brief, therefore, though Watson is in some ways a rather strange young man, I think he would make an admirable member of your staff, and that you need have no hesitation in appointing him.

I hope these opinions may be of some help to you in your deliberations. If I can be of any further assistance please do not hesitate to write to me.

Yours sincerely,

F.H.C. Crick.